an input port positioned to accept an input light beam;

at least one deflector aligned to receive the input light beam from the input port and oriented to redirect the received light beam through a selected scan pattern, the deflector being of a type that produces a predicted deviation of the redirected light beam from a desired light beam at respective locations in the selected scan pattern;

an electrical control circuit operative to produce a control signal corresponding to the selected scan pattern; and

A' con't

a controllable optical element positioned to receive either of the input light beam or the redirected light beam and having an input terminal for receiving the control signal, the optical element being responsive to the control signal to produce a corresponding correction that offsets the predicted deviation.

Sub B1

3. The optical scanning system of claim 2 wherein the at least one deflector includes a mirror mounted for rotation about a pivot axis.

4. The optical scanning system of claim 3 wherein the predicted deviation includes an angular deviation from an ideal scan path, and wherein the controllable optical element includes a beam deflector that produces an angular shift in the received beam that offsets the predicted deviation.

5. The optical scanning system of claim 3 wherein the at least one deflector is a single deflector mounted for biaxial rotation.

Sub B2

6. The optical scanning system of claim 2 wherein the controllable optical element includes a deformable membrane responsive to the control signal to deform to produce the corresponding correction.

Sub C2

7. The optical scanning system of claim 6 wherein the deformable membrane is a MEMS device.

A' con't

Sub B3

8. The optical scanning system of claim 2 wherein the at least one deflector includes a positioned detector that provides an electrical signal indicative of an angle at which the deflector redirects the light beam, and wherein the electrical control circuit is coupled to receive the electrical signal and is responsive to the electrical signal to produce the control signal.

9. The optical scanning system of claim 2 wherein the predicted distortion is a phase front distortion and wherein the corresponding distortion correction is an offsetting phase front distortion.

Sub C3

10. The optical scanning system of claim 9 wherein the controllable optical element is a deformable membrane.

11. An imaging apparatus, comprising:

a scanner positioned in a path of a beam, the scanner sweeping through a plurality of scanning positions during a scan period in response to a scan signal, the scanner producing an expected wavefront distortion of the beam at each of the scanning positions;

a wavefront corrector positioned in the beam path and responsive to an input signal to produce wavefront distortions counteracting the expected wavefront distortion of the scanner, the wavefront corrector having a response time sufficiently fast to provide the respective offsetting wavefront distortion for each of the respective scanning positions during the scanning period to produce a corrected beam for each respective scan position;

A1 Cont

an electronic controller coupled to the scanner and to the wavefront corrector, the controller producing the scan signal and the input signal; and

a detector aligned to receive the corrected beam.

12. The imaging apparatus of claim 11 wherein the wavefront corrector includes a deformable membrane.

Sub C4

13. The imaging apparatus of claim 12 wherein the wavefront corrector includes a MEMS device.

Sub B4

14. The imaging apparatus of claim 12 wherein the wavefront corrector includes a correction scanner aligned to produce a corrective shift in the beam path.

15. The imaging apparatus of claim 11 wherein the detector produces an electrical signal indicative of an intensity of the received corrected beam, and wherein the electronic controller includes a decode module coupled to the detector responsive to the electrical signal to identify a pattern within the electrical signal.

A1 cont

16. A scanning system for scanning through a substantially raster pattern having a scanning period, comprising:

a light source that emits a beam of light along a beam path;

a scanning mirror positioned in the beam path, the scanning mirror pivoting through a predetermined angular range to redirect the beam of light through the substantially raster pattern; and

an active optical element oriented to receive the beam of light and direct the received beam of light along the beam path to the scanning mirror, the optical element

being operative to pre-distort the beam of light in a periodic manner corresponding to the orientation of the scanning mirror in the predetermined angular range.

17. The scanning system of claim 16 wherein the active optical element includes a MEMS device.

18. The scanning system of claim 17 wherein the MEMS device includes a deformable membrane.

A1 con't

19. The scanning system of claim 16 further comprising a passive optical element positioned to receive the redirected beam of light.

20. The scanning system of claim 19 wherein the passive optical element is a lens.

21. A scanning module, comprising:

a MEMS scanning mirror that moves through a predetermined scan path at a selected scan rate having a scanning period; and

a MEMS membrane aligned to the MEMS scanning mirror, the membrane being deformable through a desired deformation range and having a response time sufficiently fast to deform through the desired deformation range within the scanning period.

22. The scanning module of claim 21 wherein the MEMS scanning mirror is mounted for biaxial movement.

23. The scanning module of claim 21 wherein the MEMS membrane has a resonant frequency has a period that is an integral multiple of the scanning period.

24. The scanning module of claim 21 wherein the desired deformation range is sufficiently large to correct for phase front distortion produced by the MEMS scanning mirror as it moves through the predetermined scan path.

A' con't

25. The scanning module of claim 21 wherein the scanning module has an expected imaging distance from an image plane and wherein a plurality of locations on the predetermined scan path each have a respective expected optical path length to the image plane, and wherein the deformation range of the MEMS membrane is selected to correct for differences in the respective expected optical path lengths.

26. A scanning apparatus, comprising:

a primary mirror that moves through a predetermined scan path at a selected scan rate having a scanning period; and

a resonant reflector aligned to the scanning mirror and being of a type that moves resonantly through a movement path at a resonant frequency, wherein the scan period is an integral multiple of the resonant frequency,

A' Sub B5 27. The apparatus of claim 26 wherein the resonant reflector is a MEMS membrane and wherein the movement path includes deformation of the membrane.

28. The apparatus of claim 26 wherein the resonant reflector is a mirror mounted for rotation about a pivot axis and wherein the movement path includes rotation of the resonant reflector about the pivot axis.

29. The apparatus of claim 26 wherein the primary mirror is a MEMS device.